

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Transfer of up to 4,400 acre-feet of Central Valley Project Water from Firebaugh Canal Water District to San Luis Water District or Westlands Water District

EA-09-31



U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South Central California Area Office
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List of Acronyms, Abbreviations and Definition of Terms

af	acre-feet (the volume of water one foot deep and an acre in area)
af/y	acre-feet per year
CCID	Central California Irrigation District
Contract Year	March 1, 2009 through February 28, 2009
CVP	Central Valley Project
CVPIA	Central Valley Improvement Act
CWA	Clean Water Act
DD#1	Priority Area I
DD#2	Priority Area II
DMC	Delta-Mendota Canal
DSA	Direct service area
DWR	California State Department of Water Resources
EA	Environmental Assessment
ESA	Endangered Species Act
FCWD	Firebaugh Canal Water District
FWCA	Fish & Wildlife Coordination Act
FWS	Fish and Wildlife Service
ITA	Indian Trust Assets
Jones	Jones Pumping Plant
M&I	municipal and industrial
MBTA	Migratory Bird Treaty Act
Mendota WA	Mendota Wildlife Area
mg/l	milligrams per liter
MOU	Memorandum of Understanding
MSWD	Mercy Springs Water District
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
Reclamation	Bureau of Reclamation
SIP	State Implementation Plan
SJR	San Joaquin River
SJV	San Joaquin Valley
SLC	San Luis Canal
SLCC	San Luis Canal Company
SLR	San Luis Reservoir
SLWD	San Luis Water District
SOD	South of the Delta
SWP	California State Water Project
TDS	Total dissolved solids
EPA	Environmental Protection Agency
WWD	Westlands Water District

Section 1 Purpose and Need for Action

1.1 Background

The State of California is currently experiencing unprecedented water management challenges during a third year of drought. Both the State and Federal water projects are forecasting very low storage conditions in all major reservoirs. Specifically for the Central Valley Project (CVP), additional factors have contributed to the reduction in total water supplies this year. These include: 1) low reservoir water supply conditions coming into 2009 from a dry 2007 and 2008, and 2) limits placed on pumping at Jones Pumping Plant for purposes of meeting court-ordered delta smelt protections. Based on all these factors, the Bureau of Reclamation (Reclamation) declared a shortage in the amount of water available to South of Delta (SOD) contractors for the 2009 Contract Year (March 1 through February 28).

As a further result of the continuing dry conditions, CVP reservoir storage is a critical water management concern going into the 2009 summer demand season. For SOD contractors, Reclamation relies heavily on water stored in San Luis Reservoir (SLR) to supply water to contractors during the summer. Based on Reclamation's forecast of CVP operations and the limiting factors outlined above, the amount of water able to be pumped and the amount of water existing in SLR represents a significant limitation to available water supplies for delivery in the months of June through September 2009. Without immediate action, Reclamation had concerns that SLR would reach a critical water supply low point before the end of the summer to the detriment of the Federal water contractors.

Due to the continuing dry conditions, which have resulted in CVP contract allocations being zero percent of contract totals, San Luis Water District (SLWD) and Westlands Water District (WWD) are in desperate need of additional water supplies.

Reclamation reviews and approves water transfers to ensure that the water transfer meets applicable Federal and State laws, including policies and procedures governing transfer of CVP surface supplies and, in particular, the Central Valley Project Improvement Act of 1992, Section 3405 (CVPIA).

1.2 Purpose and Need

The years 2007, 2008 and 2009 have all been dry. In addition, due to the Biological Opinion for the Continued Long-term Operation of the CVP and State Water Project (SWP) issued by the U.S. Fish and Wildlife Service on December 15, 2008, operation of the Federal Jones Pumping Plant would be limited and further reduce available CVP contract supplies. SOD CVP water service contractors need additional water since there will be no 2009 CVP surface water deliveries to supplement their 2009 CVP water supply.

This proposed transfer is intended to allow water delivery in an expeditious manner so as to assist in offsetting the effects of the lack of 2009 CVP deliveries by increasing the volume of water available to SLWD and/or WWD. The Firebaugh Canal Water District (FCWD) is delivering the water from this transfer to landowners that own property both in FCWD and SLWD and/or WWD; therefore supplying water to their own multi-water district landowners. This CVP water is needed immediately by SLWD and/or WWD to meet in-district irrigation demands.

FCWD, a San Joaquin River Exchange Contractor (Exchange Contractor), has requested that Reclamation approve the proposed transfer(s). Therefore, Reclamation's purpose of the action is to fulfill its role as Contracting Officer and approve transfer requests.

1.3 Scope

The areas in which impacts may occur are the CVP service area boundaries of FCWD, WWD and SLWD. The water would be leaving FCWD and be applied in either SLWD, WWD or both. (See Figure 1 for a map of the action area.) Additionally this environmental assessment (EA) includes potential impacts to the Delta-Mendota Canal (DMC), Mendota Pool and the San Luis Canal (SLC.)

The potential transfer occurs from April through September 2009 and therefore this will be the study period for evaluating the direct effects.

1.4 Potential Issues

Potentially affected resources in the project vicinity include:

- Surface Water Resources
- Groundwater Resources
- Land use
- Biological Resources
- Air Quality
- Cultural Resources
- Indian Trust Assets
- Socioeconomic Resources
- Environmental Justice

1.5 Authorities for the Proposed Action

The transfer analyzed in this EA is subject to the following contracting authorities and guidelines as amended and updated and/or superseded:

- Title XXXIV Central Valley Project Improvement Act, October 30, 1992, Section 3405 (a)
- Reclamation Reform Act, October 12, 1982
- Reclamation's Interim Guidelines for Implementation of Water Transfers under Title XXXIV of Public Law 102-575 (Water Transfer), February 25, 1993
- Reclamation and United States Fish and Wildlife Service (FWS) Regional, Final Administrative Proposal on Water Transfers April 16, 1998
- Reclamation's Mid-Pacific Regional Director's Letter entitled “*Delegation of Regional Functional Responsibilities to the Central Valley Project (CVP) Area Offices - Water Transfers*”, March 17, 2009

1.6 Other Related Environmental Analyses

- *EIS/EIR Water Transfer Program for the San Joaquin River Exchange Contractors Water Authority 2005–2014, dated December 2004.* In December 2004, Reclamation and the Exchange Contractors completed a Final Environmental Impact Statement/Environmental Impact Report (Final EIS/EIR)

on a water transfer program for up to 130,000 acre-feet (af) for water service years 2005-2014 involving the entire Exchange Contractors' service area (240,000 acres). This water transfer program developed the water primarily from conservation measures and tailwater recovery, but also from groundwater pumping and temporary land fallowing. It made the water available for transfer to other CVP contractors, the San Joaquin Valley (SJV) wildlife refuges, and the Environmental Water Account. (Reclamation 2004)

- *Groundwater Pumping/Water Transfer Project for 25 Consecutive Years Environmental Assessment/Initial Study SCH# 2007072012*; November 30, 2007
Under this project, the primary method for developing the water is localized groundwater pumping and the primary purpose was to alleviate drainage impacts in Central California Irrigation District (CCID) and FCWD. Furthermore, an additional purpose for the project is to develop a water supply for transfer that would provide funding for managing shallow groundwater levels within a portion of the Exchange Contractors' service area and implementation of capital improvements. Only drainage-impaired areas of approximately 28,000 acres within the two districts would be involved in water development. The application of the pumped groundwater to FCWD agricultural lands frees up commensurate surface water supplies for use by other CVP contractors as a transfer. None of the transfer water is proposed for other Federal uses such as the SJV wildlife refuges or the Environmental Water Account considered in the 2005-2014 transfer program. The transfer water for this program would be used by San Luis Unit (West San Joaquin Division) contractors and Santa Clara Valley Water District (San Felipe Division). FCWD's participation is up to 10,000 af, on an annual basis. (Reclamation 2007)

Section 2 Alternatives Including the Proposed Action

2.1 No Action

Under the No Action Alternative, Reclamation would not approve the transfer of up to 4,400 acre-feet (af) from FCWD to SLWD and/or WWD in the months of April through September 2009.

2.2 Proposed Action

Reclamation proposes to approve the transfer of up to 4,400 af of FCWD's Exchange Contract CVP supplies to WWD and/or SLWD in April through September 2009. FCWD would pump up to 15 cubic- feet per second (cfs) (up to a total of 30 af/day) of groundwater to meet their in-district demands in lieu of taking surface water deliveries dedicated to FCWD under the San Joaquin Exchange Contractor's contract. This water would be discharged into FCWD's Intake Canal and would not be delivered into Mendota Pool. The additional 30 af/day of water which would be left in the Mendota Pool would be used by Reclamation to meet its other obligations in the Mendota Pool and in exchange 30 af/day of water would be delivered to SLWD and WWD from the SLC.

No native or untilled land (fallow for three years or more) may be cultivated with CVP water involved in these actions.

No new construction or modification of existing facilities is to occur in order to complete the Proposed Action.

Transfers and exchanges involving CVP water cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats.

All transfers and exchanges involving CVP water must comply with all applicable Federal, State and local laws, regulations, permits, guidelines and policies.

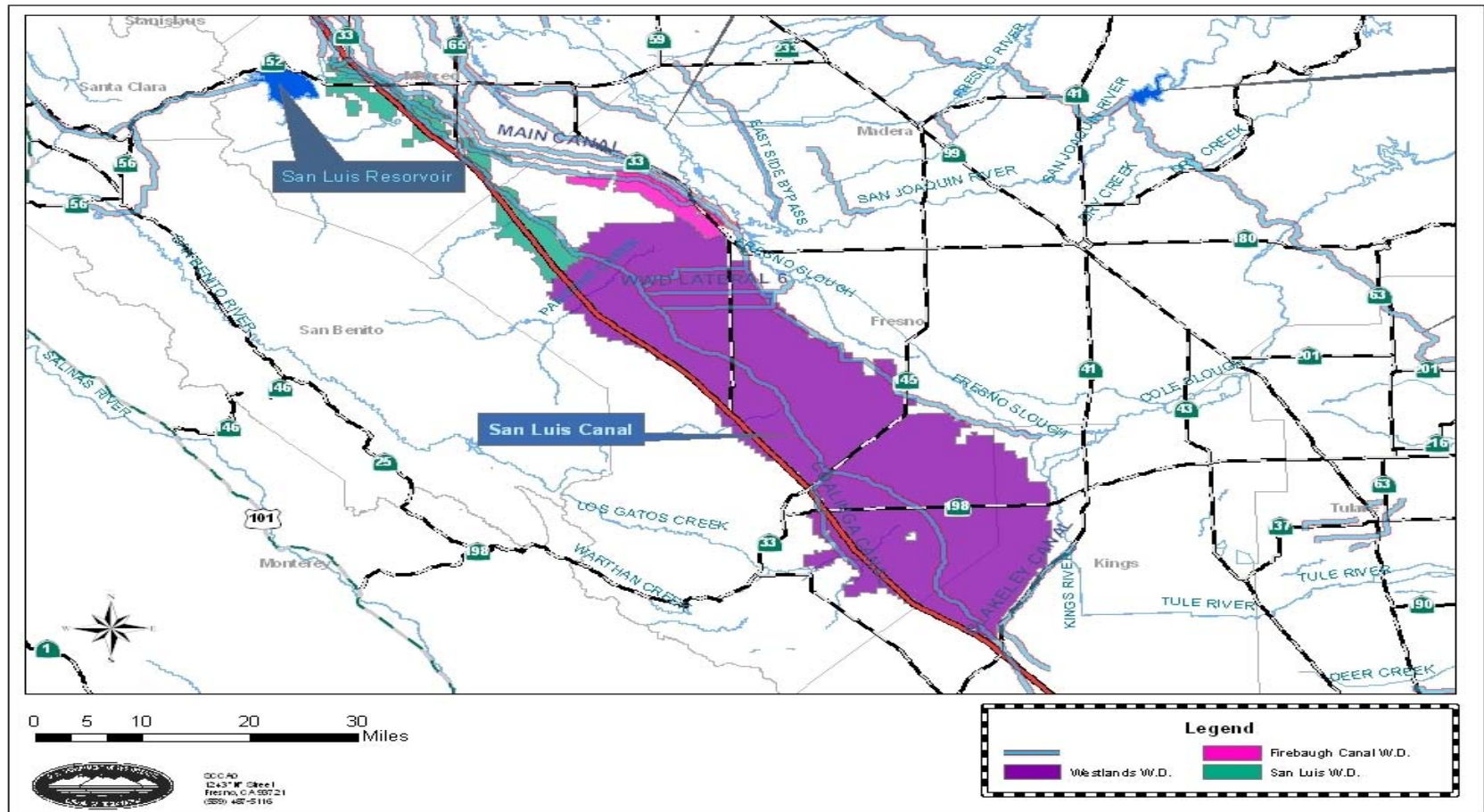


Figure 1 Project Area



Figure 2 Location of FCWD Wells Which Will Pump Up To 15 cfs/day

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Section 3 Affected Environment and Environmental Consequences

3.1 Water Resources

3.1.1 Affected Environment

Surface Water

The ten-year average allocation of SOD CVP water supplies delivered to the water contractors is described in Table 1. It lists maximum deliveries of CVP water on a yearly basis for agricultural purposes from 1999 through 2009. The ten-year average is 67 percent of contract total for agriculture. The annual contract entitlement for SLWD is 125,080 af, thus the average CVP supply (125,080 af x 0.67) is 83,804 af. With a 2009 allocation of zero percent SLWD is 83,804 af below the typical supply levels.

The annual contract entitlement for WWD is 1,150,000 af, thus the average CVP supply is 770,500 af. With a 2009 allocation of zero percent WWD is 770,500 af below the typical supply levels.

Table 1 Average SOD Agricultural Allocation (as Percentage of Contract Total)

Year	Allocation
09-10	0*
08 – 09	40
07 – 08	50
06 – 07	100
05 – 06	85
04 – 05	70
03 – 04	75
02 – 03	70
01 – 02	49
00 – 01	65
99 - 00	70
Average	67%*

(* The 09-10 zero percent allocation was not included in the average as it is an outlier in the historic allocation pattern and would skew the data.)

Refined allocation determinations will be made throughout the contract year to align the allocation with the hydrologic conditions and pumping capabilities and therefore the 2009 allocation may increase if there are additional rain and snow events. SLWD and WWD are likely to be in a severe water deficit even if there is an increased allocation.

San Joaquin River Exchange Contractors

The Exchange Contractors, which include CCID, FCWD, San Luis Canal Company and Columbia Canal Company, hold historic water rights to water in the San Joaquin River (SJR). Their service area is located on the west side of the SJV. In exchange for the CVP's regulation and diversion of the SJR at Millerton Lake (Friant Division), Reclamation agreed to supply water to the Exchange Contractors from the CVP's Delta supply.

Reclamation and the Exchange Contractors are parties to the Second Amendatory Contract for Exchange of Waters, Contract No. I1r-1144 (Contract), dated February 14, 1968, and incorporated by reference into this EA/Initial Study. Under the Contract, the United States supplies the Exchange Contractors with a substitute supply of CVP water to be used in lieu of their rights to certain waters of the SJR. Pursuant to the terms of the Contract, up to 840,000 af of substitute CVP water per year is made available for irrigation purposes by Reclamation from the Sacramento River and the Delta, and other sources through the CVP, and up to 650,000 af in critical dry years. The Exchange Contractors' operations consist of the diversion of substitute water from the DMC, the Mendota Pool, and possibly the SJR and north fork of the Kings River.

The Exchange Contractors provide water deliveries to over 240,000 acres of irrigable land on the west side of the SJV, spanning a distance roughly from the town of Mendota in the south to the town of Crows Landing in the north. The four entities of the Exchange Contractors each have separate conveyance and delivery systems operated independently, although integrated within a single operation for performance under the exchange contract.

In certain circumstances, groundwater is used to supplement the Exchange Contractors' CVP substitute water supply and to provide delivery capacity. Groundwater is also being used to improve the operational control of the distribution systems. Currently, the Exchange Contractors have an active program to capture tailwater and redirect it to distribution canals.

Firebaugh Canal Water District

FCWD's annual water supply is 85,000 af in a non-critical year. The district historically utilizes all of its annual contract supply. In a critical water year, which is based on the Shasta Lake Inflow Index criteria, the district realizes a 23 percent reduction in its annual water supply. The year 2009 was originally designated a critical year; however, recent storms have brought the Shasta Index out of the critical range and therefore FCWD's water supplied by the CVP via the delta will be 85,000 af.

FCWD's Water Transfer Policies FCWD has adopted water transfer policies which were adopted on March 11, 1993 and state the conditions that water transfers out of FCWD must adhere to. FCWD's policy is summarized below.

FCWD Directors must approve all water transfers according to the following principles:

- No transfer of more than 20 percent of FCWD's water supply subject to contract with Reclamation shall be approved without FCWD approval or conditioned approval.
- No water transfer will be approved if a substitution of groundwater is likely to result in significant long-term adverse impacts on groundwater conditions within FCWD's service area, or in unreasonable interference with pumping rates or capacities of wells within the FCWD's service area.
- No water transfer will be approved that involves groundwater pumping in critical water years.
- Before FCWD approval, the transferee must conduct a water conservation program in compliance with the urban water management plan and Water Code Sections 10610, et seq., and 10656 or an agricultural management plan adopted pursuant to Water Code Sections 10800 et seq., and a drainage program must be approved which will not cause a deleterious affect on lands downslope of any irrigated lands impacted by the transfer.
- Public hearings may be held to determine compliance with CEQA, impacts of the proposed transfer on water supply, operations, and financial conditions of FCWD and its water users. (Reclamation 2004)

Other FCWD Transfers Planned in 2009 Under the ten- year program, FCWD will free up the CVP water via fallowing approximately 2,800 acres of land, transferring up to 7,000 af to WWD, SLWD, Panoche Water District and Pacheco Water District.

Under the 25-year program, in 2009 FCWD will pump 3,000 af from shallow wells located over 15 miles from the wells considered in the Proposed Action. There are no grower wells in the area proposed for the shallow pumping under the Proposed Action.

San Luis Water District

On February 25, 1959, SLWD entered into a long-term water service contract with Reclamation and a subsequent amendatory contract on June 18, 1974, which has an annual allocation of CVP water of up to 125,080 af/year (af/y). Recently, due to the expiration of the original long-term contract, SLWD signed an interim contract. This contract was effective January 1, 2009 with a term of up to 26 months.

SLWD's water needs are 120,000 af/y. SLWD does not currently maintain detailed records regarding irrigation methods, however, because of the area's hilly terrain and rolling topography, sprinkler irrigation continues to be used quite extensively. It is estimated that sprinklers may be used on approximately 60 percent of the irrigated acreage. During the past ten years, a shift to both drip and micro irrigation systems has paralleled the conversion from row crops to permanent crops (i.e., orchards and vineyards). Drip or micro irrigation systems are currently used on approximately 23 percent of the irrigated acreage. Use of these systems is expected to increase proportionally to the shift to permanent crops.

Westlands Water District

On June 5, 1963, WWD entered into a long-term contract (Contract 14-06-200-495-A) with Reclamation for 1,008,000 af of CVP supply from the SLC, Coalinga Canal, and Mendota Pool. The first deliveries of CVP water from the SLC to WWD began in 1968. In a stipulated agreement dated September 14, 1981, the contractual entitlement to CVP water was increased to 1.15 million af. The long-term contracts for WWD expired on December 31, 2007, however interim contracts have been executed for interim contract renewal for the San Luis Unit contractors. (Reclamation 2007a)

When WWD was originally organized, it included approximately 376,000 acres. In 1963, WWD contracted with the federal government for long-term water service providing for 40 years of water service. In 1965, WWD merged with its western neighbor, Westplains Water Storage District, adding 210,000 acres. Additionally, lands comprising about 18,000 acres were annexed to WWD after the merger to form 604,000 acres. WWD has recently purchased 9,100 acres of lands previously owned by Broadview Water District to form the current 613,100 acre boundary. The 1963 water service contract terminated in 2007 and interim contracts have been executed.

The original WWD is referred to as Priority Area I (or DD#1) and the Westplains area is referred to as Priority Area II (DD#2). Priority Area I land has a contract amount of 900,000 af (approximately 2.6 af/acre) of CVP water annually, while Priority Area II has a contract amount of 250,000 af (approximately 1.3 af/acre) of CVP water annually.

Priority Area III (DD#3) is land added to WWD after the merger and has no established water allocation. Priority Area III receives CVP water only if water is available after the needs in Areas I and II are satisfied or if surplus water is available. The 9,100 acres acquired from the purchase of lands from Broadview Water District are in Priority Area III. (Reclamation 2007a)

WWD annual contract amount is subject to shortages caused by drought, legislative, environmental, and regulatory actions such as the CVPIA, the Endangered Species Act (ESA), and Bay/Delta water quality actions. The contract number for the 900,000 af contract in Priority Area I is 14-06-200-495A. The contract for the 250,000 af in Priority Area II was awarded to WWD per the December 21, 1986 Barcellos Judgement. WWD receives the majority of its CVP water supply via the SLC. Barcellos allowed for the delivery of up to 50,000 af of Priority Area II water via the DMC. (Reclamation 2007a) On December 31, 2007 these two contracts expired and as of January 1, 2008, were renewed for a period not to exceed 26 months and consolidated into one interim contract.

WWD has executed three full or partial CVP contract assignments from DMC contractors over the last decade. These assignments went to DD#1. WWD requested and received approval from Reclamation on the contract assignments of 27,000 af/y from Broadview Water District (Contract Number 14-06-200-8092-IR8), 2,990 af/y from Widren Water District (Contract Number 14-06-200-8018-1R7) and 2,500 af/y from Centinella Water District (Contract Number 7-07-20-W0055). The Widren, Centinella and Broadview contract assignments help to reduce groundwater overdraft and subsidence within WWD and alleviated poor quality discharges to the SJR. WWD has been acquiring these assignments to alleviate the recent reduction in water supplies due to environmental water needs in the Sacramento and San Joaquin River Delta. (Reclamation 2007a)

Additionally, on March 1, 2003, Reclamation approved a second partial contract assignment of 4,198 af/y from Mercy Springs Water District (MSWD) (Contract Number 14-06-200-3365A) to DD#2. The partial contract assignment involved the change in delivery of water to land historically owned and farmed by Donald Devine, David E. Wood, and their affiliated entities, (Devine and Wood) in MSWD to Devine and Wood lands in WWD. This action reduced landowner reliance on the use of transfers and groundwater to meet their crop water demands and maximized the economic benefit of this water by delivering it to Devine and Wood lands in WWD. (Reclamation 2007a)

In 1999, Reclamation stated that the estimated average long-term supply for WWD was 70 percent of its water supply contract, or about 805,000 af/y. Prior to 1990, its average CVP water supply, including interim CVP water when it was available, was

approximately 1,250,000 af/y. The total maximum additional water supply provided from the four assignments to WWD is 32,490 af. The likely long-term average deliveries for this assigned water is 22,743 af/y (as above, this is approximately 70 percent of the contract total). Therefore current average long-term CVP water supply deliveries of 827,743 af/y to WWD are still below the average deliveries prior to 1990. (Reclamation 2007a)

WWD has an on-going program to purchase and transfer supplemental water from other sources that would allow a better determination of the water supply sooner in the water year. Unlike water agencies with more abundant supplies, WWD must allocate (ration) water to its farmers, even in the wettest years. Average total demand for WWD is approximately 1,394,000 af/y. With its annual CVP contract entitlement of 1,150,000 af/y, and an annual safe yield available from groundwater pumping of approximately 135,000 to 200,000 af/y, the total water supply available from a full CVP contract supply and from groundwater is still less than the total water needed. With future CVP water deliveries estimated at 65-70 percent of the contract amount or less, WWD and individual landowners must obtain supplemental water to help make up for this deficiency.

Additionally, water users in WWD must commit to the purchase of supplemental water early in the water year. They do not know what the final price will be. Therefore, they limit their requests for supplemental water and hope that CVP allocations and the pumping of groundwater will meet the balance of their crop water needs for the year.

The acquisition of portions or all of the CVP contract assignments as part of WWD's annual base supply reduces the need for purchase of water from the spot market, reduces the use of poorer quality groundwater, and provides supplemental water at a cost water users in WWD can afford. To the extent that groundwater production can be reduced to the annual safe yield of the basin, overdraft conditions below WWD can be stabilized. It is also important to stabilize subsidence in this region to prevent damage to structures placed upon the land and to maintain the health of the aquifer.

The acquisition of long-term water supplies reduces the need for annual spot market acquisitions and helps to increase WWD's base supply. Stabilization of the base supply helps to reduce the potentially large annual swings in CVP contract supplies. These purchases also help to increase the beneficial use of scarce CVP contract supplies by using CVP water on high quality land that can support high value and more labor-intensive crops. This circumstance helps to stabilize or potentially improve the economic base of the region. (Reclamation 2007a)

Mendota Pool

Mendota Pool is a re-regulating reservoir for more than 1 million af of CVP water pumped from the Delta and delivered by the DMC. The Mendota Pool is impounded by Mendota Dam, which is owned and operated by CCID. Currently, Mendota Pool is sustained by the inflow from the DMC, which typically conveys 2,500 to 3,000 cfs to the Mendota Pool during the irrigation season. SJR water is only conveyed to the Mendota Pool during periods of flood flow. Mendota Pool extends over 5 miles up the SJR Channel and over 10 miles into Fresno Slough and varies from less than one hundred to several hundred feet wide. Water depth varies but averages about 4 feet. Mendota Pool contains approximately 8,000 af of water and has a surface area of approximately 2,000 acres when full. It is the largest body of ponded water in the SJV basin floor.

The Mendota Pool is located at the confluence of the SJR and Fresno Slough. The Mendota Pool receives water from the SJR, the Delta via the DMC, groundwater pumping from the Mendota Pool Pumpers, and intermittently from the Kings River drainage in the south via the James Bypass into Fresno Slough. Water from the Mendota Pool is diverted for a variety of agricultural, municipal, and habitat management uses. Mendota Wildlife Area (Mendota WA) receives water from the Mendota Pool via Fresno Slough, which is managed by CCID as a water conveyance facility. Gates and pumps divert water from Fresno Slough to Mendota WA.

In addition to Mendota WA, several CVP Settlement Contractors and Exchange Contractors rely on Mendota Pool for water deliveries.

Water quality conditions in the Mendota Pool depend on inflows from the DMC, groundwater pumped into Mendota Pool by the Mendota Pool Group and, to a limited extent and mainly in wet years, SJR inflows (See Figure 3). Water quality in the SJR varies considerably along the river's length. Above Millerton Lake and downstream towards Mendota Pool the quality of water in the SJR and released from Friant Dam is generally excellent. The reach from Gravelly Ford to Mendota Pool (about 17 miles) is perennially dry except during flood control releases from Friant Dam. During the irrigation season, most of the water released from the Mendota Pool to the SJR and to irrigators is imported from the Delta via the DMC. This water has higher concentrations of total dissolved solids (TDS) than water in the upper reaches of the SJR, and might be affected by runoff and seepage into the canal.

Panoche Creek, an ephemeral stream, also flows into Mendota Pool and, during high flows in the winter and spring, high concentrations of selenium have been brought into Mendota Pool via Panoche Creek flows.

An additional source of water in Mendota Pool is from adjacent land owners pumping well water into Mendota Pool and taking delivery of it in a more convenient location, at convenient timing (but within 60 days of pumping in) and at differing water quality. In 2007, these adjacent landowners pumped 7,423 af into Mendota Pool.

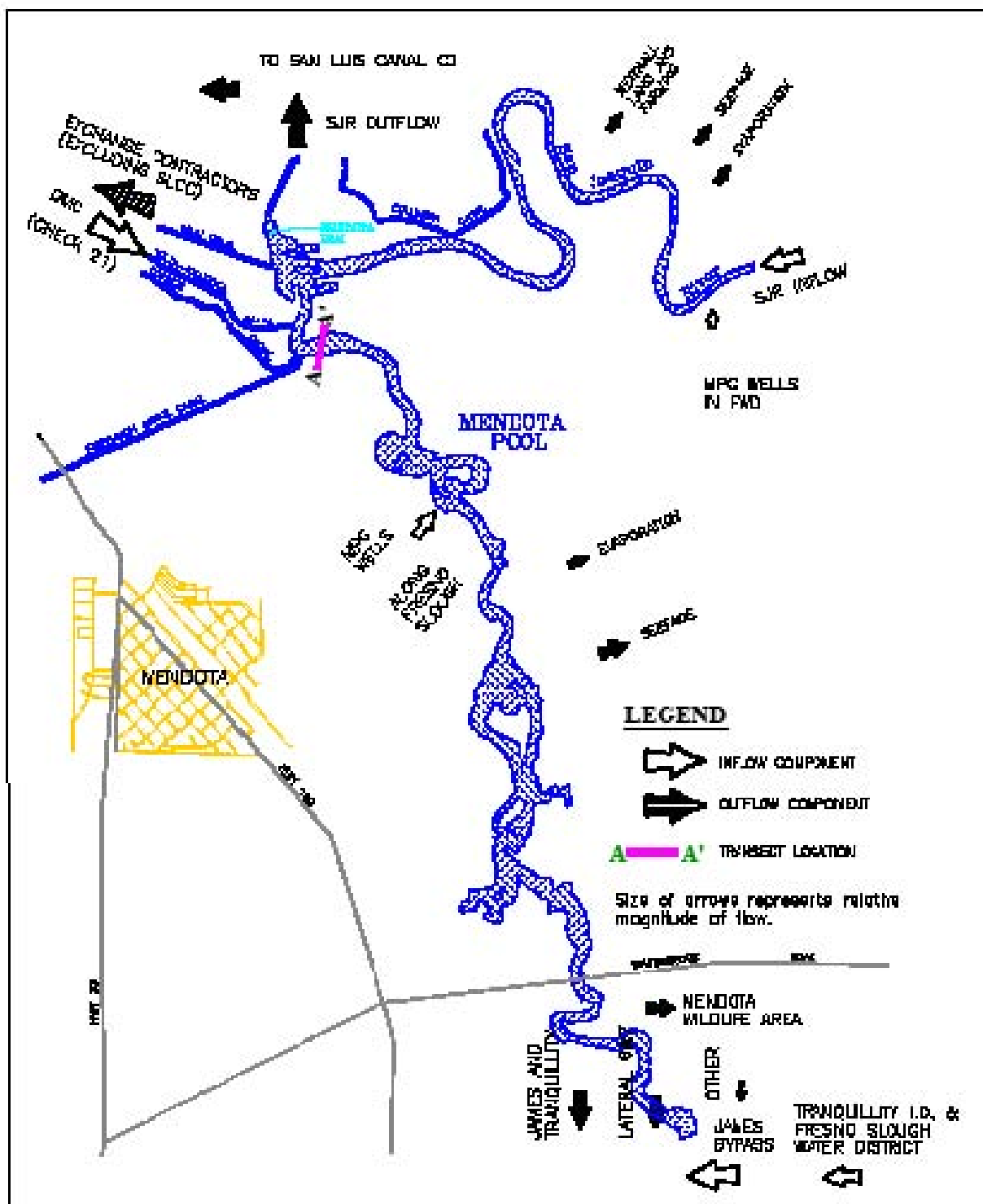


Figure 3 Mendota Pool Inflow and Outflow

Delta Division

The Delta Division provides for the transport of water through the central portion of the Central Valley, including the Sacramento-San Joaquin Delta. The main features of the division are the Delta Cross Channel, Contra Costa Canal, Jones Pumping Plant, and the DMC, constructed and operated by Reclamation or its designed operating entity. This system provides full and supplemental water, as well as temporary water service, for a total of about 380,000 acres of farmland.

The Jones Pumping Plant (Jones) consists of an inlet channel, pumping plant, and discharge pipes. Water in the Delta is lifted 197 feet into the DMC. Each of the six pumps at Jones is powered by a 22,500-horsepower motor and is capable of pumping 767 cfs. Power to run the huge pumps is supplied by CVP power plants. The water is pumped through three 15-foot-diameter discharge pipes and carried about one mile up to the DMC. The intake canal includes the Tracy Fish Screen, which was built to intercept downstream fish so they may be returned to the main channel to resume their journey to the ocean.

The DMC carries water southeasterly from the Jones along the west side of the SJV for irrigation supply, for use in the San Luis Unit, and to replace SJR water stored at Friant Dam and used in the Friant-Kern and Madera canal systems. The canal is about 117 miles long and terminates at the Mendota Pool, about 30 miles west of Fresno. The initial diversion capacity is 4,600 cfs, which is gradually decreased to 3,211 cfs at the terminus.

Groundwater

According to the California Department of Water Resources (DWR) Bulletin 118 (DWR 2003), groundwater provides approximately 30 percent of the total supply for the San Joaquin River Hydrologic Region. However, the amount of groundwater use within the region varies widely, both between different areas and from one year to the next. In WWD for example, groundwater has accounted for between 5 and 60 percent of total supply over the last 15 years, while in the Exchange Contractors' service area groundwater supplies have accounted for between 10 and 40 percent of the total over the last 10 years.

Two primary hydrologic divisions of the SJV are agreed upon by DWR, the State Board, and the U.S. Geological Survey. The San Joaquin hydrologic study area comprises the northern one-third of the valley, encompasses 3,800 square miles, and includes San Joaquin, Stanislaus, Merced, and Madera counties. The Tulare Lake hydrologic study area comprises the southern two-thirds of the valley and encompasses 7,900 square miles.

The Tulare Lake hydrologic study area includes Fresno, Kings, Tulare, and Kern counties.

Much of the SJV aquifer system is in overdraft conditions, although the extent of overdraft varies widely from region to region. In the San Joaquin Basin, overdraft conditions were estimated at approximately 224,000 af, with groundwater pumping estimated at 3,520,000 af under 1990 conditions. The Tulare Basin region has experienced a greater degree of overdraft, estimated at 630,000 af, with groundwater pumping estimated at 5,190,000 af for 1990 conditions. Groundwater pumping in the SJV varies seasonally. Most groundwater is withdrawn during the spring-summer growing season, although pumping in some areas may occur throughout the entire year. Currently, the Exchange Contractors are not in an overdraft condition with the exception of the lands that lie in Madera County. No groundwater pumping for transfer will occur within Madera County.

In the southern region of the SJV, several conjunctive use projects are operating or are in proposal stages. The purposes of each project vary and include recharge of overdrafted basins using purchased surface water, cooperative banking concepts that rely on groundwater in dry years and surface water in wet years, and temporary storage of surface water entitlements for later withdrawal.

The western SJV region has drainage problems caused by shallow clay layers of low permeability that limit recharge to groundwater. In addition, elevated concentrations of salinity, selenium, and boron exist in the semi-perched aquifer zone due to leaching from naturally occurring saline deposits from the Coast Range and from accumulated salts in the root zones of irrigated cropland. The San Joaquin Valley Drainage Program, established in 1984, published its recommendations for managing the drainage problem in 1990 (SJVDP 1990), culminating in a Memorandum of Understanding (MOU) in 1991 that allows Federal and State agencies to coordinate activities for implementing the plan. East of the SJR, the valley is underlain by older sediments. The shallow groundwater quality is generally very good in this portion of the valley.

In the areas west of the SJR, unconfined groundwater generally flows from the southwest toward the northeast, although groundwater pumping and irrigation complicates and changes local flow directions with time. Aquifer response to pumping and irrigation is relatively rapid, resulting in local changes in groundwater flow direction as associated temporary cones of depression and recharge mounds form and dissipate.

Exchange Contractors The Groundwater Management Act of 1992 (AB 3030) applies to groundwater usage by the Exchange Contractors. This act establishes a voluntary program whereby local water agencies may establish programs for managing their groundwater resources. The Exchange Contractors adopted a Groundwater Management Plan in October 1997 (Exchange Contractors 1997) most recently updated in the winter of 2008. The plan commits the Exchange Contractors to keeping records of groundwater pumping and conducting periodic monitoring of groundwater levels and quality throughout their service area.

Fresno County regulates the extraction and transfer of groundwater within the county under Title 14, Chapter 3 of the Fresno County Ordinance Code. Fresno County and the Exchange Contractors have an MOU that exempts the Exchange Contractors from regulation of groundwater resources within Fresno County. Fresno County and the Exchange Contractors agree that agricultural production is vital to the county and that groundwater, used conjunctively with surface water, is essential for continued agricultural production. The MOU specifically exempts the Exchange Contractors from the newly adopted Title 14, Chapter 3 of the Fresno County Ordinance Code, in accordance with Section 14.03.05E of the code. Fresno County recognizes that the Exchange Contractors' management, protection, and control of groundwater resources are consistent with Title 14, Chapter 3; therefore, the MOU exempts the Exchange Contractors from this code requirement (Fresno County and Exchange Contractors 2001).

Generally, groundwater development in the Exchange Contractor's service area has not influenced shallow groundwater interaction with surface water bodies. The depth to shallow groundwater, less than 10 feet deep, has been monitored intensively since 1984. The Exchange Contractors report that no trend exists regarding a significant lowering of these groundwater levels during years of heavy pumpage (C. White, pers. comm., 2004).

Table 2
Groundwater Balance in the Exchange Contractors Service Area,
Overall Groundwater Balance, 1993–2002

Year	Total Inflows (acre-feet)	Total Outflows (acre-feet)	Groundwater Pumping (acre-feet)	Change in Groundwater Storage (acre-feet)
1993	1,205,765	1,236,292	136,388	-30,527
1994*	941,575	1,151,158	225,750	-209,580
1995	1,234,440	1,190,328	102,796	44,112
1996	1,301,032	1,201,994	121,050	99,038
1997	1,153,560	1,195,461	126,047	-49,242
1998	1,339,253	1,243,397	37,686	111,198
1999	959,686	1,090,646	99,964	-86,992
2000	1,102,669	1,081,140	120,738	40,622
2001	1,084,402	1,074,070	134,212	6,105
2002	1,008,553	1,067,654	175,894	39,808
Average 1993–2002	1,133,094	1,153,214	128,053	-3,546

Source: Exchange Contractors 2003.

* Critically dry year

(Reclamation 2004)

The calculated change in groundwater storage, illustrated in Table 2, shows an average annual decrease of 3,546 af over the ten-year period, representing approximately 0.31 percent of the total average yearly inflow of over 1,000,000 af. It should be noted that the change in groundwater storage is not directly measured. It is calculated from the differences in groundwater elevations measured in a network of wells. Thus, the value must be considered an approximation. In this context, a difference of 0.31 percent is within the potential error in the calculation.

The long-term hydrographic record for the Exchange Contractors service area was reviewed by Schmidt (CCID 1997). Schmidt's review shows that groundwater is in balance or is rising. The projected agricultural demand for groundwater in the Exchange Contractors service area is static (S. Chedester, pers. comm., 1998a,b). Over 500 agricultural wells are located in the service area, and little or no expansion of the existing groundwater production well field is projected.

The Exchange Contractors project an increased demand for municipal water supply wells over the next 20 years. Currently, the average annual groundwater production rate from municipal wells within the service area is 16,500 af. That figure is projected to double by the year 2020 (S. Chedester, pers. comm., 1998a,b).

Firebaugh Canal Water District FCWD is not in a groundwater conjunctive use area. The wells which are part of the Proposed Action have previously been pumped from 2007 and 2008 however for the 12 years prior the wells had not been used.

San Luis Water District and Westlands Water District Groundwater conditions of the San Luis Unit are typified by those of the Westside Sub-basin. This sub-basin consists mainly of lands in WWD and is located between the Coast Range foothills on the west and the SJR drainage and Fresno Slough on the east. Primary recharge to the aquifer system is from seepage of Coast Range streams along the west side of the sub-basin and deep percolation of surface irrigation. Flood basin deposits along the eastern sub-basin have caused near surface soils to drain poorly, thus restricting the downward movement of percolating water. This restricts drainage of irrigation water and results in the development of irrigation problem areas.

Groundwater levels in the Westside Sub-basin were generally at their lowest levels in the late 1960s, prior to importation of surface water. After the CVP began delivery to the San Luis Unit in 1967-68, water levels gradually increased to a maximum in about 1987-88, falling briefly during the 1976-77 drought. Water levels began dropping again during the 1987-92 drought. Through a series of wet years after the drought, 1998 water levels recovered nearly to 1987-88 levels. The fluctuations in water levels illustrate both the importance of CVP deliveries in sustaining groundwater levels and the continuing influence of local and CVP-wide hydrologic conditions on surface water availability and, hence, on groundwater conditions in those areas where groundwater is pumped.

WWD and SLWD both have approved groundwater management plans, an indication of the districts involvement in management of their groundwater resources.

In addition to the CVP supply, groundwater is available to some of the lands within WWD. The safe yield of the aquifer underlying WWD is approximately 200,000 af of water. WWD supplies groundwater to some district farmers and owns some groundwater wells, with the remaining wells privately owned by water users in WWD. Other water supply sources available to the district for purchase include floodwater diverted from the Mendota Pool in periods of high runoff. (Reclamation 2007a)

Groundwater Quality Groundwater in FCWD has generally not been pumped for direct irrigation use (without mixing), because of the high salinity (often exceeding about 3,000 milligrams per liter (mg/l) of TDS) (Reclamation 2004). FCWD overlies a saline sink with very poor groundwater quality that can only be pumped and used if blended into large fresh water supplies.

Subsidence Subsidence occurs in the western SJV where land that had been used for grazing or dry farming was converted to irrigated agriculture. As a result of historic groundwater overdraft, land subsidence is widespread along the western and southern parts of the SJV. Subsidence in the SJV results from lowered groundwater elevations and the subsequent compaction of the soil interstitial spaces. Subsidence areas are primarily associated with areas that are underlain by the Corcoran Clay layer, where pressure changes due to groundwater pumping have resulted in compaction of sediments. Between 1920 and 1970, 5,200 square miles in the valley had subsided more than one foot. Land subsidence is a significant problem in the western SJV and in the SJR Basin. The largest of the three land subsidence areas in the SJV is the 2,600-square-mile Los Banos-Kettleman City area, which extends from Merced County to Kings County and lies within both the San Joaquin and Tulane basins. Groundwater production prior to completion of the California Aqueduct in 1967 caused land subsidence of 1 foot regionally and up to 29 feet locally. Importation of surface water supplies has greatly reduced the rate of groundwater pumping in these regions and, therefore, has nearly eliminated additional land subsidence except during years of water supply shortages.

Land subsidence and compaction in different zones have been measured in and adjacent to the Exchange Contractors service area since 1957. During this period, land subsidence has ranged from less than a foot under the SLC to over 5 feet near the Mendota Pool. The Exchange Contractors continue the annual service area subsidence monitoring. In the years since 1970, the rate of subsidence has declined because surface water was imported to the areas. The Exchange Contractors are conducting annual subsidence monitoring as part of their AB 3030 Groundwater Management Plan (Exchange Contractors 1997). The Exchange Contractors are also continuously monitoring subsidence, water levels, and compaction at two extensometers located along CCID facilities in Fresno County. The sites are located near the Mendota Pool and at the intersection of Russell Avenue and the DMC.

Continuously Operating Reference Stations are being installed at the sites to continuously measure total subsidence. The Continuously Operating Reference Stations are global positioning stations that continuously measure both vertical and horizontal movement of land surface. The Scripps Institute will collect the data on a daily basis as part of a study to determine relative velocities of land surfaces in North America. Annual reports will be generated, supplied to the Exchange Contractors, and analyzed.

The Mendota Pool Group has subsidence data for the Mendota Pool area. Their data has shown that shallow wells typically do not affect subsidence. Their most current report shows that inelastic compaction in the Mendota Pool area for 2008 was 0.020 feet.

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative Reclamation would not approve either of the two proposed transfers. SLWD's and WWD's current surface water supply deficit of 120,000 af (120,000 af need – 0 af CVP deliveries = 120,000 af) and 770,500 af respectively would not be abated. SLWD and/or WWD would pump available groundwater or acquire other surface water as well as taking actions to strategically reduce water demand in the district through abandonment of crops or fallowing lands.

FCWD would retain their 4,400 af of Exchange Contactor CVP supplies and no additional groundwater due to this project would be pumped.

Proposed Action

The transfer of 4,400 af would offset 0.6 to 3.4 percent of the 2009 surface water supply deficit in WWD and SLWD respectively and allow the delivery of surface water during the months of April through September 2009. The water transfer would be a minor offset to the surface water reductions in SLWD and WWD.

Water supplies in FCWD would continue to meet agricultural water demand despite the transfer. FCWD would pump an equivalent amount to offset surface water deliveries. This transfer would be required to be in compliance with FCWD's transfer policy and maintain the balance in the groundwater basin. The pumping for transfer equates to 2.7 percent of the 10-year average Exchange Contractor groundwater pumping. The FCWD groundwater pumping may be offset by a reduction in groundwater pumping in the recipient water districts where groundwater overdraft is not under control.

The wells pumping under the Proposed Action would be pumping from 180 to 240 feet – a relatively shallow level.

The following wells will be pumping:

- 8 cfs well estimated to pump up to 1,500 af
- 4 cfs well estimated to pump up to 1,000 af
- 5 cfs well estimated to pump up to 1,000 af
- 3 cfs well estimated to pump up to 900 af

The total would not exceed the 4,400 af described in the Proposed Action.

Due to the shallow zone from which the wells are pumping the groundwater being intercepted is water that is normally replenished annually. There has been no overdraft experienced in this aquifer. Additionally, since the wells are pumping a relatively small quantity from an area of no other groundwater pumping and the pumping is being done from the shallow zone, subsidence is unlikely to occur. The Mendota Pool Group reports have shown that pumping from shallow aquifers does not cause subsidence.

The 4,400 af of low quality groundwater pumped into the FCWD's distribution system has been calculated to change the TDS in FCWD's Intake Canal by no more than 30 mg/l. This water quality impact is within the normal water quality fluctuation in the canal system due to Delta pumping tidal influences and other influences.

Under the Proposed Action FCWD would have sufficient water supplies to meet their water demands. CVP and SWP facilities would not be impacted as the transferred water must be scheduled and approved by Reclamation and DWR. No natural streams or water courses would be affected since no additional pumping or diversion that would not have happened under the No Action Alternative would occur. There would be no impact to surface or groundwater water resources due to the Proposed Action.

Climate Change Climate change refers to changes in the global or a regional climate over time. Global climate change is expected to have some effect on the snow pack of the Sierra Nevadas and the run off regime. Current data are not yet clear on the hydrologic changes and how they will affect the SJV. Water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility and therefore water resource changes due to climate change would be the same with or without the Proposed Action.

3.2 Land Use

3.2.1 Affected Environment

Firebaugh Canal Water District

FCWD is a 22,000 acre California water district located within the Grassland Drainage Area boundary. Crops irrigated within district boundaries are as follows: cotton, alfalfa, asparagus, sugar beets, corn, cucumbers, wheat, barley, melons, onions, pasture, safflower, tomatoes, Sudan grass and assorted tree crops.

San Luis Water District

SLWD is located on the western side of the SJV near the City of Los Banos, in both Merced and Fresno Counties. Construction of the DMC in the 1950s sparked major development of farmland in the SJV that led to the formation of SLWD in January 1951. The district's current size is approximately 66,218 acres.

SLWD's current distribution system consists of 52 miles of pipelines, 10 miles of lined canals, and 7.5 miles of unlined canals. About 20,000 acres within the district, referred to as the Direct Service Area (DSA), receive water from 39 turnouts on the DMC and 23 turnouts on the SLC. The DSA is located almost primarily in Merced County. In addition to the DSA, three improvement districts are also served through distribution systems branching off the SLC. Both Improvement Districts 1 and 2 are primarily located within Fresno County; Improvement District 3 is located primarily in Merced County. The current population within SLWD is approximately 700.

The southern section of the district located in Fresno County is primarily agricultural. The land is planted with either row crops, including cotton and melons, or permanent crops, including primarily almonds. In recent years, some parcels in this area of the district have not been farmed because they are of marginal quality or have high water costs or drainage problems.

The district's current population is approximately 700, with most individuals residing in the community of Santa Nella, located in the extreme northern portion of the district.

Although water deliveries by the SLWD historically have been almost exclusively used for agricultural use, substantial development in and around the cities of Los Banos and Santa Nella have resulted in a shift of some water supplies to municipal and industrial (M&I) use. The SLWD currently supplies approximately 800 af/y to approximately 1,300 homes and businesses. M&I demands within the district are expected to increase.

M&I use primarily occurs in the northern section of the district, which is located in Merced County. It is anticipated that the conversion from agricultural use to M&I use will occur mostly in this section of the district. Approximately 10,000 acres identified as potential development locations are currently in the planning stages within Merced County and the district. Much of the land targeted for M&I development is currently unused for irrigated agriculture.

Westlands Water District

WWD covers almost 950 square miles of prime farmland between the California Coast Range and the trough of the SJV in western Fresno and Kings Counties. It averages 15

miles in width and stretches 70 miles in length from Mendota on the north to Kettleman City on the south. Interstate 5 is located near the district's western boundary. Nearly all land within the current WWD service area was at one time farmed using groundwater. The first deliveries of CVP water from the SLC to WWD began in 1968.

Currently WWD's district boundaries encompass 604,000 acre with an irrigable acreage of 567,800 acres. WWD provides water via gravity water service and pumping from the SLC depending on location. More than 60 different crops are grown commercially in WWD. The cropping patterns have changed over the years depending upon water availability, water quality, the agricultural economy and market factors. The acreage trend is toward planting of vegetable and permanent crops while cotton and grain acreage have decreased.

The current population within the WWD is approximately 50,000. The major community entirely within WWD is Huron. Three Rocks and Five Points are smaller communities within WWD. The communities of Firebaugh, Mendota, Kerman, Tranquillity, San Joaquin, Lemoore, and Stratford lie just outside the district's eastern edge.

CVP water in the district is used for both agricultural and M&I uses. The majority of CVP supply is used in agriculture, and of the almost 800 water users in the district, approximately 600 are agricultural users and approximately 180 are M&I users. Unlike many other key growing areas of California, urbanization is not a direct threat to productivity. The district's M&I deliveries include cities and governmental agencies; however, none of this water is treated by the district before its distribution. Current M&I deliveries are estimated to be approximately 2,000 af/y and account for only a very small percentage of the district's CVP supplies.

WWD's permanent distribution system consists of 1,034 miles of closed, buried pipeline that conveys CVP water from the San Luis and Coalinga Canals and 7.4 miles of unlined canal that conveys CVP water from the Mendota Pool. The area served by the system encompasses approximately 88 percent of the irrigable land in the district, including all land lying east of the SLC.

Of the gross 613,100 acres in WWD, approximately 570,000 acres are classified as irrigable. Water is delivered throughout WWD via 1,034 miles of underground pipelines, virtually eliminating seepage and evaporation losses in the distribution system. All water is metered at the point of delivery through more than 3,200 agricultural and 250 M&I meter locations. WWD contains three water service areas; these areas, referred to as priority areas, receive varying amounts of available water supply.

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative crop failure is highly probable. A large portion of SLWD's and WWD's surface water supplies have been reduced due to the drought. With insufficient water to continue with current agricultural practices, row crops would likely be abandoned and additional ground fallowed. Water would most likely be diverted to permanent crops. Insufficient water supplies currently exist to support the permanent crops currently planted in these districts.

Proposed Action

Under the Proposed Action the 4,400 af of additional water delivered to SLWD and/or WWD would offset between 0.6 to 3.4 percent of the surface water delivery deficit and allow water supplies to be delivered to SLWD during April through September 2009. Land fallowing is still expected due to the severity of the water shortage, however the infusion of 4,400 af of additional water supplies would preserve some vineyards or orchards that might otherwise have been abandoned.

There would be no land use changes in FCWD as their water supply is not changing.

There would be a slight positive impact on land use in SLWD and/or WWD due to the ability of some established row crops to remain in production and the enhanced survival of orchards.

3.3 Biological Resources

3.3.1 Affected Environment

The following list was obtained on March 18, 2009, (document number 090318015102) by accessing the U.S. Fish and Wildlife (FWS) Database:

http://www.fws.gov/pacific/sacramento/es/spp_lists/auto_list.cfm. The list is for the Stratford, Westhaven, Kettleman City, Huron, Guijarral Hills, Avenal, La Cima, Coalinga, Black Canyon, Burrel, Vanguard, Lemoore, Five Points, Westside, Harris Ranch, Califax, Tres Pecos Farms, Lillis Ranch, San Joaquin, Helm, Tranquillity, Coit Ranch, Levis. Cantua Creek, Chaney Ranch, Chounet Ranch, Monocline, Firebaugh, Oxalis, Dos Palos, Hammonds Ranch, Broadview Farms, Charleston School, Ortigalita Peak, Laguna Seca Ranch, Los Banos Valley, Volta, Los Banos and San Luis Dam (FWS, 2009). The database was last updated on January 29, 2009.

TABLE 3: POTENTIAL FEDERAL STATUS SPECIES IN QUADS COVERING FCWD, WWD AND SLWD

<u>Common Name</u>	<u>Species Name</u>	<u>Fed Status</u>	<u>ESA</u>	<u>Summary basis for ESA determination</u>
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California red-legged frog	<i>Rana aurora draytonii</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	T	NE	No effect on natural stream systems
Delta smelt	<i>Hypomesus transpacificus</i>	T	NE	No downstream effects from action
Giant garter snake	<i>Thamnophis gigas</i>	T	NE	No land use changes would occur as a result of this action, no adverse water quality changes at Mendota Pool; no conversion of habitat, and no new facilities.
California tiger salamander	<i>Ambystoma claiiforniense</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California tiger salamander Critical Habitat	<i>Ambystoma claiiforniense</i>	CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California condor	<i>Gymnogyps californianus</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Giant kangaroo rat	<i>Dipodomys ingens</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Fresno kangaroo rat	<i>Dipodomys nitratoide exillis</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.

TABLE 3: POTENTIAL FEDERAL STATUS SPECIES IN QUADS COVERING FCWD, WWD AND SLWD				
Fresno kangaroo rat – Critical Habitat	<i>Dipodomys nitratoideis exillis</i>	CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Tipton kangaroo rat	<i>Dipodomys nitratoideis nitratoideis</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Palmate-bracted bird's beak	<i>Cordylanthus palmatus</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.

The action area consists of agricultural fields that provide some habitat values for a few species listed above, however there is routine disturbance due to on-going farming practices.

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no impacts to biological resources since conditions would remain the same as existing conditions.

Proposed Action

Affects are similar to the No Action Alternative. Most of the habitat types required by species protected by the ESA do not occur in the project area. The Proposed Action would not involve the conversion of any land fallowed and untilled for three or more years. The Proposed Action also would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species or birds protected by the

Migratory Bird Treaty Act (MBTA). Since no natural stream courses or additional surface water pumping would occur, there would be no effects on listed fish species. No critical habitat occurs within the area affected by the Proposed Action and so none of the primary constituent elements of any critical habitat would be affected.

The short duration of the water availability, the requirement that no native lands be converted without consultation with the FWS, and the stringent requirements for transfers under applicable laws would preclude any impacts to wildlife, whether federally listed or not.

3.4 Air Quality

3.4.1 Affected Environment

Despite years of improvements, the SJV air basin does not meet state and federal health-based air-quality standards. To protect health, the Valley Air District is required by federal law to adopt stringent control measures to reduce emissions.

Section 176 © of the Clean Air Act (42 U.S.C. 7506 ©) requires any entity of the Federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the Federal Clean Air Act (42 U.S.C. 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact conform to the applicable SIP before the action is taken.

On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain de minimis amounts thus requiring the federal agency to make a determination of general conformity.

The following de minimis amounts for the region covering the Exchange Contractors, SLWD and WWD are presented in Table 4.

Table 4 General Conformity de minimis Thresholds		
Pollutant	Federal Status	De minimis (Tons Per Year)
VOC (as an ozone precursor)	Nonattainment serious 8-hour ozone	50
NO X (as an ozone precursor)	Nonattainment serious 8-hour ozone	50
PM 10	Nonattainment moderate	100
CO	Attainment Maintenance	100

Sources SJVAQMD 2009; 40 CFR 93.153

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no impacts to air quality since conditions would remain the same as existing conditions.

Proposed Action

Two of the wells that would be pumped have electric motors and the other two have the latest tier three diesel engines. These low emission engines would not reach the de minimis threshold and therefore a conformity analysis is not required under the Clean Air Act and there would be a slight impact on air quality.

3.5 Cultural Resources

3.5.1 Affected Environment

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The CVP is being evaluated for the National Register of Historic Places (NRHP). The CVP includes the DMC, San Luis (B. F. Sisk) Dam, and the SLC. The DMC, completed in 1951, is part of the Delta Division of the CVP that carries water southeasterly from the Jones Pumping Plant along the west side of the SJV for irrigation, for use in the San Luis Unit, and to replace SJR water stored at Friant Dam and used in the Friant-Kern and Madera canal systems. The DMC is being nominated to the NRHP as part of the CVP Multiple Property Listing under Criterion A for its significance under the theme of Development, Construction, and Operation of the CVP and its major role in transferring of water from the wetter Sacramento River Valley to the drier SJR Valley.

3.5.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no impacts to cultural resources since there would be no ground disturbance. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action

Transferring water as described in the Proposed Action would not result in impacts to archeological or cultural resources. These lands are agricultural lands that have undergone cultivation and land disturbance for more than 20 years. A determination has been made that there is no potential effect to cultural resources.

3.6 Indian Trust Assets

3.6.1 Affected Environment

Indian trust assets (ITAs) are legal interests in assets that are held in trust by the United States Government for federally recognized Indian tribes or individual Indians. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the Interior is the trustee for the United States on behalf of federally recognized Indian tribes. “Assets” are anything owned that holds monetary value. “Legal interests” means there is a property interest for which there is a legal remedy, such as compensation or injunction, if there is improper interference. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something. ITAs cannot be sold, leased or otherwise alienated without United States’ approval. ITAs may include lands, minerals, and natural resources, as well as hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets. In some cases, ITAs may be located off trust land.

Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain ITAs reserved by Indian tribes, or individual Indians by treaty, statute, or Executive Order.

3.6.2 Environmental Consequences

No Action

Under the No Action Alternative there are no impacts to ITAs, since conditions would remain the same as existing conditions.

Proposed Action

There are no tribes possessing legal property interests held in trust by the United States in the water involved with this action, nor is there such a property interest in the lands designated to receive the water proposed in this action. There are no ITAs, Indian Reservations, or public domain allotments found within FCWD, SLWD or WWD.

3.7 Socioeconomic Resources

3.7.1 Affected Environment

The agricultural industry significantly contributes to the overall economic stability of the SJV. The CVP allocations each year allow farmers to plan for the types of crops to grow and to secure loans to purchase supplies. Depending upon the variable hydrological and economical conditions, water transfers and exchanges could be prompted. The economical variances may include fluctuating agricultural prices, pestilence, changing hydrologic conditions, increased fuel and power costs.

3.7.2 Environmental Consequences

No Action

Under the No Action Alternative economic conditions in the vicinity of SLWD and/or WWD would worsen. As agricultural land is taken out of production there would be a decreasing need for farm labor, and farm equipment and supplies. The economic impacts of reduced agricultural production would reverberate through the central SJV's economy at a time when it is already shaky.

Proposed Action

The Proposed Action would allow for continued water deliveries to SLWD and/or WWD and would maintain the stability of the agricultural market and economical vitality for the SJV to some degree. The proposed transfer would not interfere with SWP or CVP priorities or operations.

The water service transactions are temporary actions and do not result in long-term increases in water supplies that would encourage urbanization or construction.

3.8 Environmental Justice

3.8.1 Affected Environment

Executive Order 12898, dated February 11, 1994, requires Federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations.

The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America. The population of some small communities typically increases during late summer harvest overwhelming local water and sewage facilities and causes public health problems.

3.8.2 Environmental Consequences

No Action

The No Action Alternative would result in harm to minority or disadvantaged populations within the vicinity of SLWD or WWD. Lands would be temporarily or permanently taken out of agricultural production with resulting reduction in the need for farm labor.

Proposed Action

The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease. The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. Some amount of agricultural production that would not be sustained with the current water availability would continue with the resulting preservation of jobs. The unemployment rate in the vicinity of SLWD and WWD suggests that any actions that maintain seasonal jobs should be considered beneficial. Employment opportunities for low-income wage earners and minority population groups would be within historical conditions. Disadvantaged populations would not be subject to disproportionate impacts.

3.9 Cumulative Impacts

Additional transfers to SLWD and WWD are under development. Transfers in this dry year will not provide sufficient water to meet the full irrigation demand in these districts. Therefore there will be no adverse cumulative impact of additional transfers in or groundwater deliveries via Warren Act contract on land uses, biological resources, or socioeconomics. Since there was no impact to cultural resources or ITAs there is no cumulative impacts to these resources. The pump in project is under the de minimis standard for federal agencies under the CAA so again there are no cumulative impacts to air quality.

The Exchange Contractors have committed to a policy of no net depletion of groundwater over the next ten years. Based on a review of groundwater levels over the past ten years, no net substantial change in groundwater storage has occurred within the Exchange Contractors service area. The average annual volume of groundwater pumped over the period from 1993 to 2002 was approximately 130,000 af/y. As discussed in the previous section on water balance, it appears that a pumping rate of 130,000 af/y can be sustained without creating an overdraft condition in the Exchange Contractors service area. The Exchange Contractors propose no more than 20,000 af/y of transfer water to be

developed from groundwater in a normal year. (Reclamation 2004) Under current practices, approximately 6,000 af/y of transfer water is developed through groundwater pumping (D. Steiner, pers. comm., 2004). Given the small amount of the increase, the groundwater pumping component of the proposed transfer would likely have little or no direct effect on groundwater levels or flow patterns within the source area over the 25-year duration of the various Exchange Contractor programs. Furthermore, ongoing groundwater monitoring would detect any negative impacts that FCWD pumping may have on nearby wells or the depth to water. These impacts are prohibited under the FCWD's 1993 transfer policies. The cumulative impact of groundwater pumping is minimal.

The proposed transfer, when added to other actions, would not contribute to significant increases or decreases in environmental conditions. These water service actions would be temporary lasting only through September 2009. The Proposed Action was found to have no impact on water resources, biological resources, cultural resources, ITAs, and socioeconomics and therefore there is no contribution to cumulative impacts on these resources areas. Slight beneficial impacts to land use and environmental justice are within the historical variations and would not contribute to cumulative impacts. Overall there would be no cumulative impacts caused by the Proposed Action.

Section 4 Consultation and Coordination

4.1 Fish and Wildlife Coordination Act (16 USC § 651 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The implementation of the CVPIA, of which this action is a part, has been jointly analyzed by Reclamation and the FWS and is being jointly implemented. Since there would be no construction and water would move in existing facilities the FWCA does not apply.

4.2 Endangered Species Act (16 USC §1521 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Since there would be no ground disturbance, no adverse water quality changes in giant garter snake habitat, and because water would move in existing facilities, there would be no effect on endangered species.

4.3 National Historic Preservation Act (15 USC § 470 et seq.)

Section 106 of the NHPA requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological and cultural resources. Since there would be no ground disturbance and water would move in existing facilities there is no potential to effect cultural resources.

4.4 Migratory Bird Treaty Act (16 USC § 703 et seq.)

The MBTA implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior may adopt regulations determining the extent to which, if at all,

hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action would not affect birds protected under the MBTA.

4.5 Executive Order 11988 – Floodplain Management and Executive Order 11990-Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains. Executive Order 11990 places similar requirements for actions in wetlands. The Proposed Action would not affect either concern.

4.6 Clean Air Act (42 USC § 176 et seq.)

Section 176 (c) of the Clean Air Act (42 U.S.C. 7506 (c)) requires any entity of the Federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the Federal Clean Air Act (42 U.S.C. 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact conform to the applicable SIP before the action is taken.

On November 30, 1993, USEPA promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain de minimis amounts thus requiring the federal agency to make a determination of general conformity.

The two of the wells that would be pumped have electric motors and the other two have the latest tier three diesel engines. These low emission engines would not reach the de

minimis threshold and therefore a conformity analysis is not required under the Clean Air Act and there would be a slight impact on air quality.

4.7 Clean Water Act (16 USC § 703 et seq.)

Section 401

Section 401 of the Clean Water Act (CWA) (33 USC § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the CWA (33 USC § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual Corps dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

No pollutants would be discharged into any navigable waters under the Proposed Action so no permits under Section 401 of the CWA are required.

Section 404

Section 404 of the CWA authorizes the Corps to issue permits to regulate the discharge of “dredged or fill materials into waters of the United States” (33 USC § 1344). No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action, therefore permits obtained in compliance with CWA section 404 are not required.

Section 5 List of Preparers and Reviewers

Judi Tapia – Supervising Natural Resource Specialist

Patricia Rivera – Indian Affairs Officer

Jonathan Connolly – Archeologist

Shauna McDonald – Wildlife Biologist

Michael Inthavong – Natural Resource Specialist – Reviewer

Rena Ballew – Repayment Specialist – Reviewer

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